

[0135] In this embodiment IIIId, the acts iid and ivd are optional and may be omitted. However, a more accurate result may be obtained by performing all the described acts.

[0136] FIG. 7 shows an example of an MR image of a prostate as part of a current case dataset ID. In FIG. 8, this image is depicted with indicated segments of the prostate. The segments include a central zone CZ and a peripheral zone PZ of the prostate as well as a lesion L.

[0137] FIG. 9 shows three examples SD1, SD2, SD3 of MR images of different prostates which are a part of the pre-stored medical datasets to which the current case dataset shown in FIG. 7 and FIG. 8 is compared by the method according to one of the embodiments described above. Out of a plurality of pre-stored medical datasets SD1, SD2, SD3, . . . the pre-stored medical datasets SD1, SD2, SD3 have been identified as the three pre-stored medical datasets most similar to the current case dataset ID. Despite of the obvious differences in size and location of the lesions depicted for the pre-stored medical datasets SD1, SD2, SD3 they are identified as similar for reasons of clinical significance that might not directly be obvious for a human observer. However, thorough study of the datasets might reveal similarities in the smaller structures of the lesions or in other MR images, acquired with different parameters and/or acquisition protocols.

[0138] For an observer, it becomes easier or even possible in the first place to discover these similarities due to the method and arrangements of the invention.

[0139] FIG. 10 shows another example of an MR image of a prostate as part of a current case dataset ID and a heat map HM that can be obtained by some embodiments of the invention (e.g. by the predefined AI-methods IIIfb, IIId and IIId). The heat map HM indicates risk regions RR in which a malign lesion is indicated with high clinical significance. The heat map can be a binary map as shown here or color coded with respect to the clinical significance. It can be displayed separately, as shown here, or overlaid on the MR image. The display of an overlaid heatmap for the current case dataset and the pre-stored medical datasets, that have been identified as most similar, can further facilitate the assessment by the observer.

[0140] Although the present invention has been disclosed in the form of preferred embodiments and variations thereon, it will be understood that numerous additional modifications and variations could be made thereto without departing from the scope of the invention. For the sake of clarity, it is to be understood that the use of “a” or “an” throughout this application does not exclude a plurality, and “comprising” does not exclude other acts or elements. The mention of an “arrangement” or a “system” does not preclude the use of more than one unit or device and does not preclude a spatial distribution of the components e.g. in a network or a cloud system.

1. A method for identifying similar pre-stored medical datasets for comparison with a current case dataset, the method comprising:

- providing a current case dataset comprising radiological data of a patient;
- providing a number of pre-stored medical datasets each comprising radiological data of other patients;
- obtaining a number of definitive features for that case dataset based on an evaluation of each current case and pre-stored medical dataset according to a predefined AI-based method;

identifying a number of pre-stored medical datasets most similar to the current case dataset based on a comparison of the definitive features of the current case dataset with the definitive features of each pre-stored medical dataset; and

outputting the identified number of most similar pre-stored medical datasets.

2. The method according to claim 1, wherein obtaining comprises obtaining by the evaluation of the current case and pre-stored medical datasets with respect to tissue abnormalities.

3. The method according to claim 1, further comprising training the AI-based method with histological information associated with each pre-stored medical dataset used as ground truth.

4. The method according to claim 1, wherein each current case and pre-stored medical dataset comprises multi-parametric MRI data.

5. The method according to claim 1, wherein each current case and pre-stored medical dataset comprises values of one or more of the following parameters: PSA value, PSA density, DRU score, EPE score, lymph node status, and/or patient age.

6. The method according to claim 1, wherein each current case and pre-stored medical dataset comprises values of one or more of the following radiologically determined parameters: PI-RADS value, lesion size, lesion location and/or organ volume.

7. The method according to claim 1, wherein the predefined AI-based method obtains a single scalar value for a risk score as definitive feature in the evaluation of each current case and pre-stored medical dataset.

8. The method according to claim 1, wherein the predefined AI-based method obtains, as part of the evaluation, a vector of definitive features comprising values for one or more of the following radiomic parameters: lesion size, lesion intensity, lesion shape, lesion texture, wavelet transformation.

9. The method according to claim 1, wherein the predefined AI-based method obtains, as part of the evaluation, a vector of defined features comprising one or more values for a risk score and values for parameters of a task-specific fingerprint.

10. The method according to claim 1, wherein the predefined AI-based method uses a convolutional neural network configured to evaluate the current case and pre-stored medical datasets to obtain a vector comprising abstract definitive features.

11. The method according to claim 1, wherein the most similar pre-stored medical datasets are identified by minimum distance measures between the current case dataset and the pre-stored medical datasets.

12. The method according to claim 2, wherein obtaining comprises obtaining by the evaluation of the current case and pre-stored medical datasets with respect to tissue abnormalities comprising lesions.

13. The method according to claim 2, wherein obtaining comprises obtaining by the evaluation of the current case and pre-stored medical datasets with respect to tissue abnormalities comprising indications of prostate cancer.

14. An evaluation arrangement for identifying similar pre-stored medical datasets for comparison with a current case dataset, the evaluation arrangement comprising